

SOUTHEAST ALASKA TROLL FISHERY
PERFORMANCE MONITORING, 1989



By:

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and
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ABSTRACT

The commercial troll fishery in Southeast Alaska is monitored to allow estimation of in-season catch in a timely manner. Approximately 10% of the fishery landings are sampled in various ports throughout the region to determine catch per standardized day. Aerial surveys using light aircraft are conducted to determine the number of vessels fishing per area. Region catches are calculated by multiplying the numbers of vessels observed times the catch per day times the number of days of the open fishing period.

Fish tickets are collected from all buyers in the region and sent to the Sitka troll management office where they are edited, collated and keyed into a micro-computer using customized programming. Preliminary catches are compared to estimated catches to determine if additional fishery openings or closures are required.

INTRODUCTION

The commercial troll fishery in Southeast Alaska occurs in waters under both State and Federal jurisdiction east of the longitude of Cape Suckling. All other waters of Alaska including the Fisheries Conservation Zone (FCZ) west of Cape Suckling are closed to commercial trolling.

The Alaska Board of Fisheries promulgates State fishing regulations while the Secretary of Commerce is the Federal counterpart for regulating fishing activities in the FCZ. The Board of Fisheries and the North Pacific Fishery Management Council meet annually to insure that compatible management measures are employed to the greatest extent possible.

Although less than 10% of the troll chinook and coho salmon catch is normally reported from outer coastal areas beyond three miles of the surfline which constitutes the Federal FCZ waters, coordination of State and Federal regulations is required to minimize confusion for fishermen fishing both areas.

Management of Alaska's commercial fisheries is based on policies and regulations promulgated by the Board of Fisheries. Authority to issue in-season emergency orders to adjust fishing seasons and areas is delegated through the Commissioner of the Alaska Department of Fish and Game (ADF&G) to Department fisheries management biologists. This provides the necessary flexibility to regulate fisheries in response to in-season assessment of resource availability. A similar system exists in the Federal management agency where the National Marine Fisheries Service has authority to institute in-season regulatory changes.

Salmon Stocks

The commercial troll fishery targets primarily on chinook and coho salmon stocks. While some targeting occurs on pink salmon in certain localized areas, pink, chum and sockeye salmon harvested by trollers are normally considered incidental to the taking of the two primary target species. The troll fishery normally accounts for 80% - 90% of the chinook salmon and 50% - 75% of the coho salmon taken in Southeast Alaska fisheries.

Native chinook and coho salmon stocks occur throughout Southeast Alaska. Chinook salmon spawn primarily in large mainland rivers and their tributaries, the most important of which are the Alsek, Taku, Stikine, (the transboundary rivers) and the Behm Canal rivers. In total, 34 systems in Southeast Alaska are known to produce runs of chinook salmon.

Current information indicates that a majority of the chinook salmon presently harvested in the Alaska troll fishery are produced from spawning streams and hatcheries in Canada and the Pacific Northwest. Several age

classes of mature spawners and immature chinook salmon are harvested by trollers during any one fishing season. A minimum size limit of 28 inches (measured from tip of snout to tip of tail) applies to chinook salmon harvested by troll gear.

Coho salmon occur in most of the approximately 2,000 anadromous fish streams in Southeast Alaska and spawn during the fall and early winter months. Most of the coho salmon harvested by trollers are of Alaskan origin and are harvested in the year of spawning. There is no minimum size limit for coho salmon.

Southeast Alaska chinook and coho salmon stocks are generally depressed from historical production levels although coho salmon returns in 1982-86 were unusually strong, probably as a result of recent mild winters. Many non-Alaska chinook salmon stocks contributing to Southeast Alaska fisheries are also depressed. A fifteen-year rebuilding program begun in 1981 for Southeast Alaska chinook salmon stocks combined with coastwide chinook salmon conservation measures implemented under the U.S./Canada Salmon Treaty, are expected to significantly improve natural runs.

Since statehood, annual commercial catches by all Southeast Alaska gear types have often exceeded 300,000 chinook and 1,000,000 coho salmon, (Figures 1 & 2) although chinook salmon catches have been below 300,000 since 1981 as a result of imposed catch ceilings. These harvests, though substantial, are considerably lower than levels produced between 1930 and 1950. Peak historical harvest levels most likely occurred partially at the expense of spawning escapements, and hence were not sustainable. Some southern U.S. chinook salmon stocks have declined due to habitat degradation, though depressed catch levels during the 1960's and 1970's are probably less than natural stocks are capable of producing given adequate escapements.

Chinook Salmon Fishery Management

Rebuilding of Southeast Alaska chinook salmon stocks and participation in coastwide natural chinook salmon stock conservation efforts have required new management and regulatory approaches in recent years. The long term management approach for Southeast Alaska and transboundary chinook salmon includes a 15-year stock rebuilding program begun in 1981. This long term rebuilding schedule was established to spread out the socio-economic impact of catch reductions on the trolling industry which derives about half of its income from the harvest of chinook salmon.

While annual chinook salmon spawning escapements to Southeast Alaskan systems have generally remained below desired management goals, significant improvements have occurred since 1981 and the rebuilding schedule is generally being met. This has been primarily the result of spring trolling closures initiated since 1981 and continuation of extensive troll, net and sport fishery restrictions implemented during the mid-1970's in inside waters and

terminal areas. Guideline harvest levels set by the U.S./Canada Pacific Salmon Commission are used to control catch levels of chinook salmon in the Southeast Alaska troll fishery. Opening fishing dates are established by the Alaska Board of Fisheries. When the guideline harvest level is reached the fishery is closed to the taking of chinook salmon. A system of in-season catch estimation developed by the department in 1979 is used to estimate the chinook salmon catch by area and predict the date the guideline harvest level will be reached. This system provides more timely catch data than sales receipts (fish tickets) because of the delay in processing tickets from all the remote buying stations in Southeast Alaska.

Coho Salmon Fishery Management

The troll coho salmon season normally occurs from June 15 through September 20 although the major portion of the catch generally occurs from mid-July through early September. Troll coho salmon catches generally peak near mid-August while catches in inside gill net fisheries peak approximately one month later near mid-September; migrations into spawning streams peak between late September and mid-October (Figure 3). Southeast Alaska coho salmon fisheries are managed on in-season run strength and are regulated to achieve conservation objectives and Board of Fisheries established allocation policies. The coho salmon fishery is not managed under harvest guidelines as is the chinook salmon fishery.

One of the major problems complicating effective management of the coho salmon fishery is the recent shift of troll fishing effort from inside to outer coastal management areas. This has increased the mixed stock nature of the coho salmon fishery. Management problems have resulted because a major portion of the coho salmon catch is now occurring in outer coastal fishing areas before coho salmon are available in inside water fishing districts where individual run strength can be better assessed. Also as a result of increased effort by the troll fishery in outer coastal areas, inside fisheries, including troll, have experienced reduced opportunities for coho salmon harvest.

Management of the coho salmon troll fishery is based upon in-season assessment of run strength as determined troll fishery performance in relation to previous seasons. Coho salmon fishing success of terminal area drift gill net fisheries and some inside recreational fisheries is used to provide information concerning escapement rates of coho salmon through the troll fishing areas and as general indicator of escapements to some mainland spawning streams.

METHODS

Estimation of the in-season troll catch of chinook and coho salmon is accomplished by multiplying the number of boats observed fishing times the catch rate derived from dockside sampling (Tables 1, 2, 3, 4 & 5). In order to account for the variability in catch rates throughout Southeast Alaska, the region is divided into six areas that closely correspond to fleet fishing patterns (Figure 4):

- Area 1 - Waters north and west of Cape Suckling.
- Area 2 - Waters west of Baranof Island and Chichagof Island between Cape Spencer and Cape Ommaney.
- Area 3 - Waters west of Prince of Wales Island between Cape Muzon and Cape Ommaney.
- Area 4 - Waters of Icy Strait, North Chatham Strait, Lynn Canal and Stephens Passage.
- Area 5 - Waters of Frederick Sound, South Chatham Strait, and Sumner Strait.
- Area 6 - Waters of Clarence Strait and Dixon Entrance.

Catch rates for each of these areas are calculated weekly using information gathered from dockside interviews at the time the fisherman sells his catch (Table 1). The number of interviews each week is determined by practicality. Sample goals are set for each port based on a percentage of historical landings but the goals may not be achieved if landings do not meet expectations.

A minimum goal of 2,280 valid data points for a 12 week season is apportioned though the region by port (major ports have more samples, minor ports have fewer samples) in order to obtain a goal of 10% of expected total landings. Past years' data is used to evaluate each new year's sampling goals. Sampling goals for each port are minimum expectations; and higher numbers of data points for each port are encouraged if the number of vessel landings allow. The variability in fishing effort by area for the troll fishery prevents precise sampling expectations by port or by statistical area. Troll fishermen tend to move to areas of higher catch rates, and those areas of concentrated effort may differ from week to week, and from year to year. The intent is to maintain an overall 10% sample of the troll landings. The 10% figure is derived as being a representative sub-sample of the landings, and as being logistically feasible.

Interviews are normally conducted while cold storage personnel sort and grade the catch. Chinook and coho salmon are counted by the sampler. A sample form is completed for each interview (Figure 5). Completed forms are mailed to the Sitka troll management office weekly from each port.

The number of boats fishing in each area is determined by aerial surveys using light aircraft. Surveys of the entire region are attempted weekly but are weather dependent (Table 6).

The following information is produced from the completed samples:

1. Catch per boat day. (Table 1)
2. Average catch per boat day. (Table 2)
3. Estimated catch for the week. (Table 3)
4. Estimated region catch by day and week. (Table 4)
5. Standardized catch per unit of effort. (Table 3 & 5)

Actual catches of chinook and coho salmon are tallied from fish tickets (sales receipts) that are completed by the buyers at the time of landing. This process can not be completed in a timely manner to allow in-season use of this data. The catch summaries generated from the fish ticket files are necessary to check the actual catch against the estimated in-season catch and to provide accurate catches by area and time to compute coded wire tag contributions.

Fish tickets from all landing ports in Southeast Alaska are shipped to Sitka via mail service. Fish ticket editors check the tickets for accuracy and completeness and enter the data on a micro computer using a customized program. Approximately 25,000 tickets are processed for the summer season and 2,000 - 3,000 tickets are processed for the winter season.

RESULTS

Chinook Fishery Monitoring

The summer season troll target harvest is set by subtracting the winter and June harvests and the expected net fishery and recreational totals from the 263,000 ceiling. In 1989, this left a total of 154,200 chinook available for the summer harvest exclusive of hatchery add-on.

Inseason Management

Ceiling	263,000
Winter harvest	34,800
June harvest	31,000
Expected Net harvest	20,000
Expected Recreational harvest	22,000
Summer Target	154,200

Opening of the 1989 general summer trolling season was again delayed until July 1 in order to reduce the duration of the chinook salmon non-retention which occurs after the allowable chinook catch has been taken. The summer chinook season was open only until July 13 when projections indicated that the target catch level had been reached. The actual catch was 167,696 including

the hatchery add-on. The 13 day season was one day longer than the 1988 season of 12 days (Figure 6). The short 1989 season was primarily due to a high catch rate of 12,900 chinook salmon per day; (Figure 7). This is only slightly less than that seen in 1988. The increased chinook catch rates appear to be due both to increased chinook abundance and accumulation of fish during the long spring and early summer closures. The summer chinook season was also shortened several days by the June Experimental and Hatchery Access Fisheries (Table 7).

Chinook salmon non-retention was implemented on July 14 and continued to the end of the summer season on September 20. Several outer coastal areas of high chinook salmon abundance were closed to all fishing to reduce chinook salmon hook and release mortality. In the 1989, chinook salmon non-retention was limited to 58 days compared to 47 days in 1988. The increase was due to the lack of closures for coho conservation.

Chinook salmon non-retention was monitored by ADF&G onboard observers when the troll fishery remained open to fishing for other species.

Coho Fishery Monitoring

General regulatory dates for the troll coho salmon season are June 15 through September 20. The major portion of the coho catch normally occurs from mid-July through early September. Troll coho catches generally peak between late July and mid-August, while catches in inside gill net fisheries peak approximately one month later near mid-September. Migrations into spawning streams generally peak about mid-October. During recent years, a higher proportion of the troll catch has occurred earlier in the season. Early chinook closures and subsequent increases in coho targeting have contributed to this pattern. However it also appears that other factors such as run timing or effort location shifts may have contributed.

Southeast Alaska coho salmon fisheries are managed on assessed in-season run strength, and are regulated to achieve conservation objectives and allocation policies established by the Board.

During the 1970's, troll effort and coho catch increased in the outer coastal areas. In 1980, the Board specified a 10-day closure during the coho season to maintain the historical allocation balance to inside fisheries. In addition, this allows coho to segregate into more distinct stock units to facilitate assessment of run strength. The 10-day closure has been implemented each year since 1980.

In 1989 coho returns to Southeast Alaska improved significantly over the 1988 returns. The 1989 troll harvest of about 1,400,000 cohos was nearly 300% above the 1988 harvest of about 500,000. By comparison the 1971-80 average troll harvest was 654,000 and the 1980-85 average troll harvest was 1,100,000 coho (Figure 2).

Opening of the general coho season in 1989 was delayed to correspond to the opening of the chinook season on July 1. However, coho caught beginning June 15 in the experimental and hatchery fisheries could be retained. Historically, less than 5% of the troll catch occurred between June 15 and July 1. Many of these fish are probably caught in the experimental or hatchery access fisheries and in the general summer fishery as most of these fish remain in the area to feed. Following the closure of trolling for chinook on July 13, trollers were allowed to continue fishing for cohos after offloading any chinook aboard. Catches of coho by period are shown in Table 7.

A ten-day closure was implemented for the troll fishery on August 14 to address the allocation of coho catches between the outside troll fishery and the inside troll, net, and recreational fisheries as directed by the Alaska Board of Fisheries, and to provide adequate migration of coho to inside areas to meet spawning requirements.

During its spring 1989 meeting the Board established an allocation guideline of 61% of the commercial coho harvest for the troll fleet. In 1989, the troll fleet accounted for 65% of the total commercial harvest.

DISCUSSION

Monitoring of the chinook and coho salmon troll fishery in Southeast Alaska has provided fishery managers with timely catch rate and effort information since 1979. This information has become increasingly important as catch limits and allocation decisions have prompted manipulation of seasons, fishing areas and restrictions designed to comply with directives of the Alaska Board of Fisheries and the Pacific Salmon Commission.

The basic procedures used to determine catch rates has remained the same since 1979. However, implementation of the program has required continuous changes and updating of methods and standardized units as effort levels and run sizes have fluctuated.

As seasons have shortened because of catch ceilings for chinook or depressed returns of coho collection of reliable catch and effort data have become more difficult.

One primary source of error in catch estimation may be the aerial survey boat count (Table 6). Incomplete counts for the region have been a continuing problem since the inception of the program. Weather, particularly poor visibility and high wind velocities often contribute to incomplete surveys. Attempting to survey 500 linear miles of coastline in one or two days may be too ambitious. However, with shorter seasons, fleet dispersal and redistribution is presently so commonplace that it is felt that any longer period may not accurately reflect actual fishing patterns.

Accuracy of catch estimation is also effected by sampling levels. It is often impossible for the port samplers to sample at adequate levels when several hundred boats attempt to land their catch within a one or two day period.

Therefore, we have experienced decreasing ability in acquiring data critical to management decisions, while at the same time, we have had to increasingly rely upon the limited data at hand.

Table 1.

Troll fishery performance data summary, 1989.

Sampling period: July 1 through 8 (Stat. week 27)						
Sampling Area	# Area Efforts	# Boat Days	# Chin. Sampled	Chin. Catch Per Boat Day	# Coho Sampled	Coho Catch Per Boat Day
1	49	203.0	8,769	43.1	585	2.8
2	87	270.3	6,116	22.6	1,613	5.9
3	53	106.0	830	7.8	2,317	21.8
4	41	60.8	193	3.1	220	3.6
5	31	84.5	1,028	12.1	790	9.3
6	11	36.0	625	17.3	1,558	43.2
Region -->	272	760.6	17,561	-	7,083	-

Sampling period: July 9 through 15 (Stat. week 28)						
Sampling Area	# Area Efforts	# Boat Days	# Chin. Sampled	Chin. Catch Per Boat Day	# Coho Sampled	Coho Catch Per Boat Day
1	52	267.5	6,877	25.7	2,021	7.5
2	62	263.5	3,903	14.8	2,902	11.0
3	60	167.5	1,439	8.5	3,200	19.1
4	46	63.8	215	3.3	255	4.0
5	22	58.5	803	13.7	799	13.6
6	21	91.0	895	9.8	2,445	26.8
Region -->	263	911.8	14,132	-	11,622	-

Sampling period: July 16 through 22 (Stat. week 29)						
Sampling Area	# Area Efforts	# Boat Days	# Chin. Sampled	Chin. Catch Per Boat Day	# Coho Sampled	Coho Catch Per Boat Day
1	11	18.5	0	.0	1,407	76.0
2	24	91.0	0	.0	6,111	67.1
3	25	88.0	0	.0	4,144	47.0
4	31	35.5	0	.0	435	12.2
5	2	4.0	0	.0	20	5.0
6	10	41.5	0	.0	2,496	60.1
Region -->	103	278.5	0	-	14,613	-

Table 1 (continued).

Sampling period: July 23 through 29 (Stat. week 30)						
Sampling Area	# Area Efforts	# Boat Days	# Chin. Sampled	Chin. Catch Per Boat Day	# Coho Sampled	Coho Catch Per Boat Day
1	37	132.5	0	.0	12,356	93.2
2	57	236.8	0	.0	19,665	83.0
3	45	157.0	0	.0	10,980	69.9
4	51	86.0	0	.0	1,406	16.3
5	19	36.5	0	.0	1,375	37.6
6	23	109.5	0	.0	6,336	57.8
Region -->	232	758.3	0	-	52,118	-

Sampling period: July 30 through August 5 (Stat. week 31)						
Sampling Area	# Area Efforts	# Boat Days	# Chin. Sampled	Chin. Catch Per Boat Day	# Coho Sampled	Coho Catch Per Boat Day
1	28	76.5	0	.0	5,542	72.4
2	60	293.5	0	.0	19,055	64.9
3	37	124.5	0	.0	6,890	55.3
4	29	43.0	0	.0	953	22.1
5	23	41.0	0	.0	852	20.7
6	21	100.3	0	.0	5,572	55.5
Region -->	198	678.8	0	-	38,864	-

Sampling period: August 6 through 12 (Stat. week 32)						
Sampling Area	# Area Efforts	# Boat Days	# Chin. Sampled	Chin. Catch Per Boat Day	# Coho Sampled	Coho Catch Per Boat Day
1	55	217.5	0	.0	20,299	93.3
2	81	279.5	0	.0	18,928	67.7
3	41	89.0	0	.0	4,127	46.3
4	49	83.0	0	.0	3,016	36.3
5	4	11.0	0	.0	92	8.3
6	20	87.8	0	.0	6,205	70.6
Region -->	250	767.8	0	-	52,667	-

Table 1 (continued).

Sampling period: August 13 through 19 (Stat. week 33)						
Sampling Area	# Area Efforts	# Boat Days	# Chin. Sampled	Chin. Catch Per Boat Day	# Coho Sampled	Coho Catch Per Boat Day
1	45	237.3	0	.0	18,047	76.0
2	52	169.5	0	.0	10,516	62.0
3	23	74.0	0	.0	3,375	45.6
4	26	51.0	0	.0	1,986	38.9
5	20	67.5	0	.0	1,139	16.8
6	14	46.0	0	.0	2,160	46.9
Region -->	180	645.3	0	-	37,223	-

Sampling period: August 20 through 26 (Stat. week 34)						
Sampling Area	# Area Efforts	# Boat Days	# Chin. Sampled	Chin. Catch Per Boat Day	# Coho Sampled	Coho Catch Per Boat Day
1	15	16.5	0	.0	524	31.7
2	12	25.0	0	.0	1,416	56.6
4	34	45.0	0	.0	1,566	34.8
5	1	1.0	0	.0	42	42.0
Region -->	62	87.5	0	-	3,548	-

Sampling period: August 27 through Sept. 2 (Stat. week 35)						
Sampling Area	# Area Efforts	# Boat Days	# Chin. Sampled	Chin. Catch Per Boat Day	# Coho Sampled	Coho Catch Per Boat Day
1	60	226.0	0	.0	19,182	84.8
2	63	250.0	0	.0	21,539	86.1
3	14	64.5	0	.0	2,630	40.7
4	88	212.0	0	.0	8,593	40.5
5	16	59.8	0	.0	1,846	30.8
6	25	114.5	0	.0	3,630	31.7
Region -->	266	926.8	0	-	57,420	-

Table 1 (continued).

Sampling period: September 3 through 9 (Stat. week 36)

Sampling Area	# Area Efforts	# Boat Days	# Chin. Sampled	Chin. Catch Per Boat Day	# Coho Sampled	Coho Catch Per Boat Day
1	31	86.3	0	.0	8,557	99.2
2	8	20.5	0	.0	1,068	52.0
3	1	7.0	0	.0	184	26.2
4	36	70.0	0	.0	4,191	59.8
5	4	15.0	0	.0	507	33.8
6	7	22.0	0	.0	663	30.1
Region -->	87	220.8	0	-	15,170	-

Sampling period: September 10 through 16 (Stat. week 37)

Sampling Area	# Area Efforts	# Boat Days	# Chin. Sampled	Chin. Catch Per Boat Day	# Coho Sampled	Coho Catch Per Boat Day
1	39	123.0	0	.0	11,683	94.9
2	10	38.0	0	.0	1,830	48.1
4	68	175.5	0	.0	6,674	38.0
5	2	3.5	0	.0	62	17.7
Region -->	119	340.0	0	-	20,249	-

Sampling period: September 17 through 23 (Stat. week 38)

Sampling Area	# Area Efforts	# Boat Days	# Chin. Sampled	Chin. Catch Per Boat Day	# Coho Sampled	Coho Catch Per Boat Day
1	30	50.8	0	.0	2,530	49.8
2	5	16.0	0	.0	645	40.3
4	23	56.0	0	.0	1,846	32.9
5	2	4.0	0	.0	40	10.0
Region -->	60	126.8	0	-	5,061	-

Table 2. Catch estimation for chinook by period, 1989.

1989 Summer Troll Chinook Target: 168,000
 PROJECTED CATCH THRU JULY 5: 78,887
 PROJECTED CATCH THRU JULY 13: 156,927
 NUMBER OF DAYS TO CATCH TARGET: 14.1

JULY 1 THRU JULY 5

Sampling Area	Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR PERIOD	Catch Per Day
1	43.1	90	5	19,395	3,879
2	22.6	421	5	47,573	9,515
3	7.8	97	5	3,783	757
4	3.1	58	5	899	180
5	12.1	71	5	4,296	859
6	17.3	34	5	2,941	588
Region ->	20.5	771		78,887	15,777

JULY 6 THRU JULY 13

Sampling Area	Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR PERIOD	Catch Per Day
1	25.7	71	8	14,598	1,825
2	14.8	421	8	49,846	6,231
3	8.5	59	8	4,012	502
4	3.3	42	8	1,109	139
5	13.7	43	8	4,713	589
6	9.8	48	8	3,763	470
Region ->	14.3	684		78,041	9,755

Table 3.

Troll fishery performance data listing of
standardized C.P.U.E. and C.P.U.E. variance
for chinook salmon only, 1989.

Sampling period: July 1 through 8 (Stat. week 27)

Sampling Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	30.1	22.0	49
2	19.2	14.0	87
3	6.0	5.3	53
4	4.7	4.4	41
5	9.7	11.3	31
6	12.4	9.1	11
Region ->	-	-	272

Sampling period: July 9 through 13 (Stat. week 28)

Sampling Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	18.0	15.4	52
2	12.6	9.0	62
3	7.0	10.4	60
4	4.6	4.1	46
5	9.4	10.5	22
6	9.5	6.4	21
Region ->	-	-	263

Table 4. Catch estimation for coho by week, 1989.

STAT. WEEK 27

Sample Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	2.8	90	7	1,764	252
2	5.9	421	7	17,387	2,484
3	21.8	97	7	14,802	2,115
4	3.6	58	7	1,462	209
5	9.3	71	7	4,622	660
6	43.2	34	7	10,282	1,469
Region Figures ----->		771		50,319	7,188

STAT. WEEK 28

Sample Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	7.5	71	5	2,663	533
2	11.0	421 /1	5	23,155	4,631
3	19.1	59	5	5,635	1,127
4	4.0	42	5	840	168
5	13.6	43	5	2,924	585
6	26.8	48	5	6,432	1,286
Region Figures ----->		684		41,648	8,330

STAT. WEEK 29

Sample Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	76.0	32	6	14,592	2,432
2	67.1	460	6	185,196	30,866
3	47.0	72	6	20,304	3,384
4	12.2	91	6	6,661	1,110
5	5.0	43 /1	6	1,290	215
6	60.1	33	6	11,900	1,983
Region Figures ----->		731		239,943	39,991

Table 4 (continued).

STAT. WEEK 30

Sample Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	93.2	32 /1	6	17,894	2,982
2	83.0	460 /1	6	229,080	38,180
3	69.9	72 /1	6	30,197	5,033
4	16.3	91 /1	6	8,900	1,483
5	37.6	43 /1	6	9,701	1,617
6	57.8	33 /1	6	11,444	1,907
Region Figures ----->		731		307,216	51,203

STAT. WEEK 31

Sample Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	72.4	32 /1	6	13,901	2,317
2	64.9	460 /1	6	179,124	29,854
3	55.3	72 /1	6	23,890	3,982
4	22.1	91 /1	6	12,067	2,011
5	20.7	43 /1	6	5,341	890
6	55.5	33 /1	6	10,989	1,832
Region Figures ----->		731		245,311	40,885

STAT. WEEK 32

Sample Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	93.3	121	6	67,736	11,289
2	67.7	150	6	60,930	10,155
3	46.3	35	6	9,723	1,621
4	36.3	116	6	25,265	4,211
5	8.3	58	6	2,888	481
6	70.6	26	6	11,014	1,836
Region Figures ----->		506		177,556	29,593

Table 4 (continued).

STAT. WEEK 33

Sample Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	76.0	121 /1	1	9,196	9,196
2	62.0	150 /1	1	9,300	9,300
3	45.6	35 /1	1	1,596	1,596
4	38.9	116 /1	1	4,512	4,512
5	16.8	58 /1	1	974	974
6	46.9	26 /1	1	1,219	1,219
Region Figures ----->		506		26,798	26,798

STAT. WEEK 34

Sample Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	31.7	121 /1	2	7,671	3,836
2	56.6	150 /1	2	16,980	8,490
3	-	35 /1	2	0	0
4	34.8	116 /1	2	8,074	4,037
5	42.0	58 /1	2	4,872	2,436
6	-	26 /1	2	0	0
Region Figures ----->		506		37,597	18,799

STAT. WEEK 35

Sample Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	84.8	121 /1	6	61,565	10,261
2	86.1	150 /1	6	77,490	12,915
3	40.7	35 /1	6	8,547	1,425
4	40.5	116 /1	6	28,188	4,698
5	30.8	58 /1	6	10,718	1,786
6	31.7	26 /1	6	4,945	824
Region Figures ----->		506		191,453	31,909

Table 4 (continued).

STAT. WEEK 36

Sample Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	99.2	121 /1	6	72,019	12,003
2	52.0	150 /1	6	46,800	7,800
3	26.2	35 /1	6	5,502	917
4	59.8	116 /1	6	41,621	6,937
5	33.8	58 /1	6	11,762	1,960
6	30.1	26 /1	6	4,696	783
Region Figures ----->		506		182,400	30,400

STAT. WEEK 37

Sample Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	94.9	121 /1	6	68,897	11,483
2	48.1	150 /1	6	43,290	7,215
3	-	35 /1	6	0	0
4	38.0	116 /1	6	26,448	4,408
5	17.7	58 /1	6	6,160	1,027
6	-	26 /1	6	0	0
Region Figures ----->		506		144,795	24,133

STAT. WEEK 38

Sample Area	Coho Catch Per Boat Day	Number Boats Observed	Number Effective Fishing Days	PROJECTED CATCH FOR WEEK	Catch Per Day
1	49.8	121 /1	4	24,103	6,026
2	40.3	150 /1	4	24,180	6,045
3	-	35 /1	4	0	0
4	32.9	116 /1	4	15,266	3,816
5	10.0	58 /1	4	2,320	580
6	-	26 /1	4	0	0
Region Figures ----->		506		65,869	16,467

/1 Aerial survey not taken for this week/area strata;
the number of vessels was estimated.

Table 5. Standardized C.P.U.E. and variance for coho, 1989.

Sampling period: July 1 through 8 (Stat. week 27)

Sampling Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	5.0	9.4	49
2	4.0	3.7	87
3	24.1	30.6	53
4	4.4	5.2	41
5	7.5	10.2	31
6	31.1	24.2	11
Region ->	-	-	272

Sampling period: July 9 through 15 (Stat. week 28)

Sampling Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	9.6	12.7	52
2	10.2	7.8	62
3	20.0	17.3	60
4	4.7	5.4	46
5	14.2	12.0	22
6	27.1	19.1	21
Region ->	-	-	263

Sampling period: July 16 through 22 (Stat. week 29)

Sampling Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	49.9	19.4	11
2	55.5	25.9	24
3	48.4	20.8	25
4	13.9	8.7	31
5	5.3	1.2	2
6	57.8	24.3	10
Region ->	-	-	103

Table 5

(continued).

Sampling period: July 23 through 29 (Stat. week 30)

Sampling Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	65.1	44.4	37
2	70.6	27.2	57
3	62.2	39.1	45
4	20.9	11.5	51
5	38.4	26.3	19
6	54.0	26.0	23
Region ->	-	-	232

Sampling period: July 30 through August 5 (Stat. week 31)

Sampling Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	48.8	32.4	28
2	54.7	24.7	60
3	55.1	23.7	37
4	26.9	14.4	29
5	26.3	17.7	23
6	52.2	23.3	21
Region ->	-	-	198

Sampling period: August 6 through 12 (Stat. week 32)

Sampling Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	63.9	38.4	55
2	52.7	30.8	81
3	41.3	28.2	41
4	39.8	27.7	49
5	7.4	2.6	4
6	64.8	32.6	20
Region ->	-	-	250

Table 5

(continued).

Sampling period: August 13 through 19 (Stat. week 33)

Sampling Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	65.6	22.1	45
2	61.0	28.0	52
3	44.3	24.8	23
4	45.7	39.2	26
5	17.1	13.5	20
6	50.4	23.3	14
Region ->	-	-	180

Sampling period: August 20 through 26 (Stat. week 34)

Sampling Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	60.6	35.5	15
2	49.4	47.1	12
3	-	-	0
4	40.8	16.8	34
5	47.9	-	1
6	-	-	0
Region ->	-	-	62

Sampling period: August 27 through Sept 2 (Stat. week 35)

Sampling Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	68.2	41.3	60
2	76.7	46.7	63
3	59.6	60.0	14
4	39.5	19.2	88
5	36.2	21.7	16
6	33.9	14.8	25
Region ->	-	-	266

Table 5

(continued).

Sampling period: Sept. 3 through 9 (Stat. week 36)

Sampling Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	76.4	37.6	31
2	52.1	26.3	8
3	25.7	-	1
4	58.2	39.4	36
5	29.5	17.9	4
6	34.3	15.0	7
Region ->	-	-	87

Sampling period: Sept. 10 through 16 (Stat. week 37)

Sampling Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	73.9	46.9	39
2	54.6	27.2	10
3	-	-	0
4	39.6	24.2	68
5	17.4	10.5	2
6	-	-	0
Region ->	-	-	119

Sampling period: Sept. 17 through 20 (Stat. week 38)

Sampling Area	Average Catch Per Gear Day	Standard Deviation for Samples	Number of Samples
1	55.1	28.2	30
2	50.5	19.1	5
3	-	-	0
4	33.1	17.8	23
5	31.4	17.9	2
6	-	-	0
Region ->	-	-	60

Table 6.

1989 TROLL VESSEL SURVEYS

SURVEY No. / DATES	AREAS	BOAT COUNT	TOTAL
1. 7/2,3,4	1	90	771
	2	421	
	3	97	
	4	58	
	5	71	
	6	34	
2. 7/9,10	1	71	684
	2	421 NC	
	3	59	
	4	42	
	5	43	
	6	48	
3. 7/19	1	32	731
	2	460	
	3	72	
	4	91	
	5	43 NC	
	6	33	
4. 8/9	1	121	506
	2	150	
	3	35	
	4	116	
	5	58	
	6	26	

Table 7 . Preliminary 1989 Southeast Alaska troll fishery chinook and coho salmon catches by period.

Period	Days	Thousands of Fish	
		Chinook	Coho
Winter Season			
October 1, 1988 - April 14, 1989	169	34.3	-
Summer Season			
April 15 - May 31	47	Closed	Closed
June 1 - June 30 ¹	30	34.4	7.5
July 1 - July 13	13	167.7	129.3
July 14 - August 13	31	Closed	850.4
August 14 - August 23	10	Closed	Closed
August 24 - September 20	28	Closed	428.3
September 21 - September 30	10	Closed	Closed
Summer Season Subtotals		201.8	1,415.5
1989 Season Totals		235.8	1,415.5

¹ Special June Chinook Access fisheries open June 5-7 and June 21-23 in inside fishing districts only. Experimental hatchery openings were several days each week in six area near hatcheries; open for chinook June 6-14; open all species June 15-29.

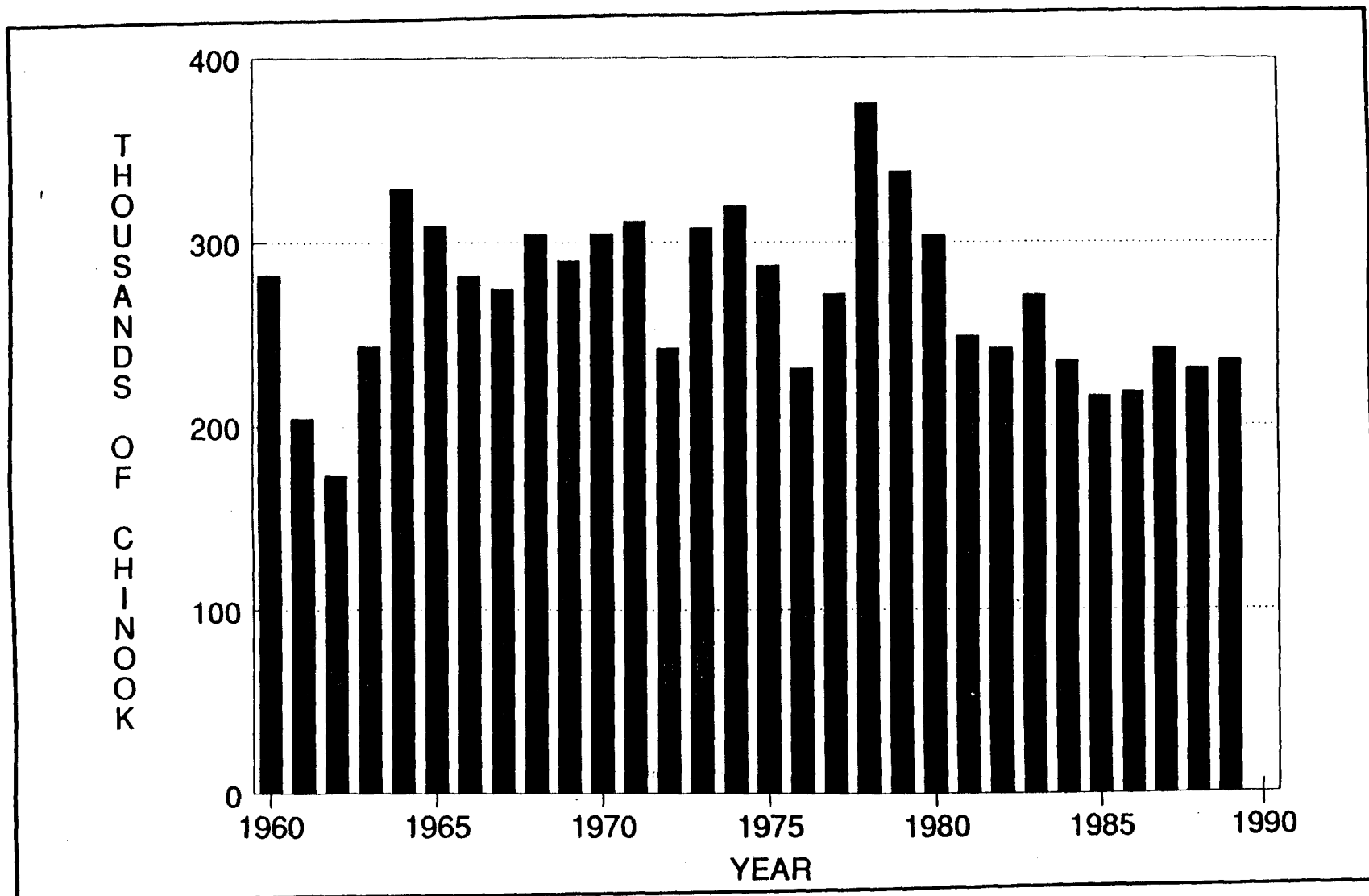


Figure 1. Chinook catches in the Southeast Alaska troll fishery, 1960 to present.

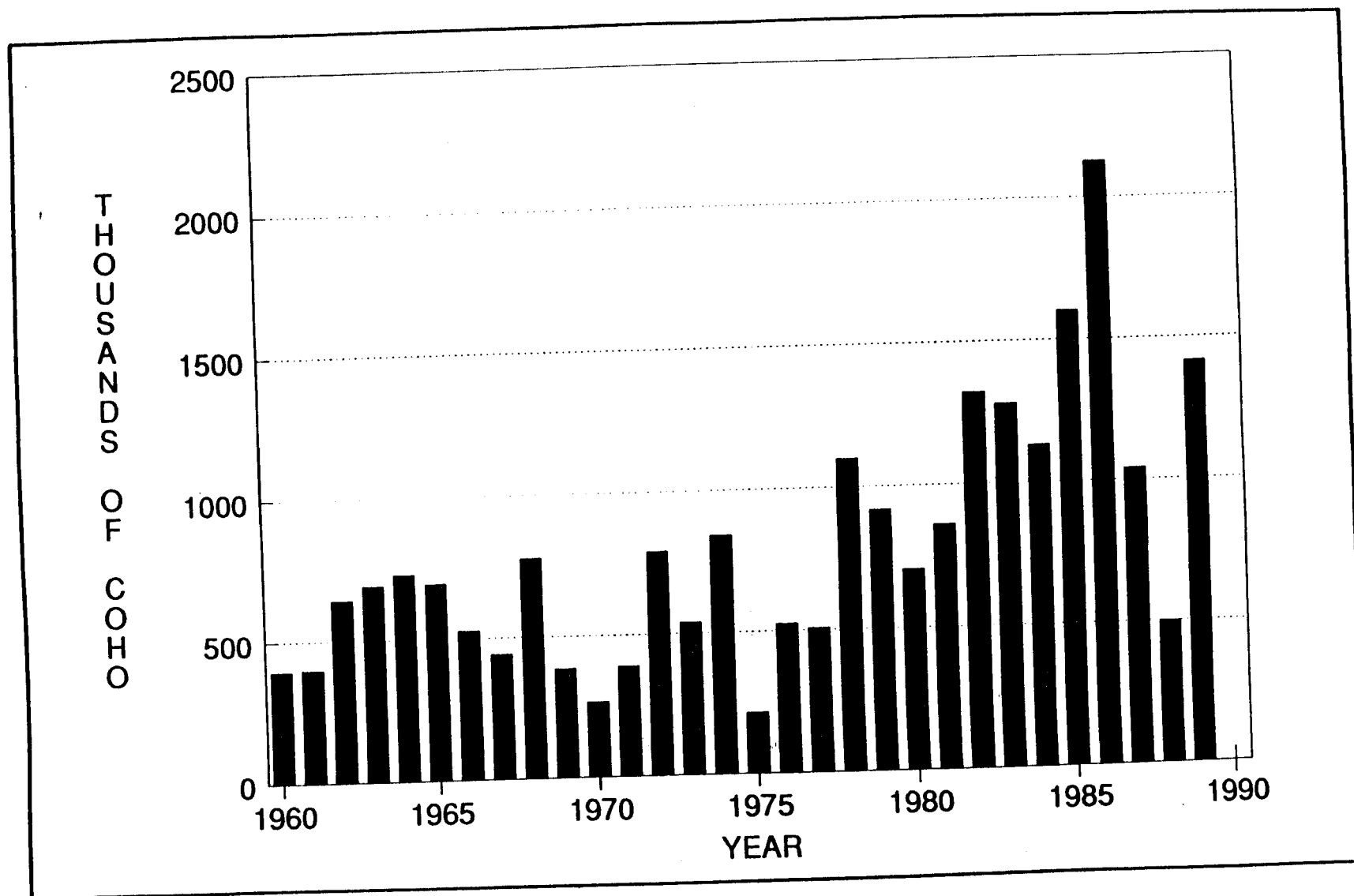


Figure 2. Southeast Alaska troll fishery coho salmon catches, 1960 to present.

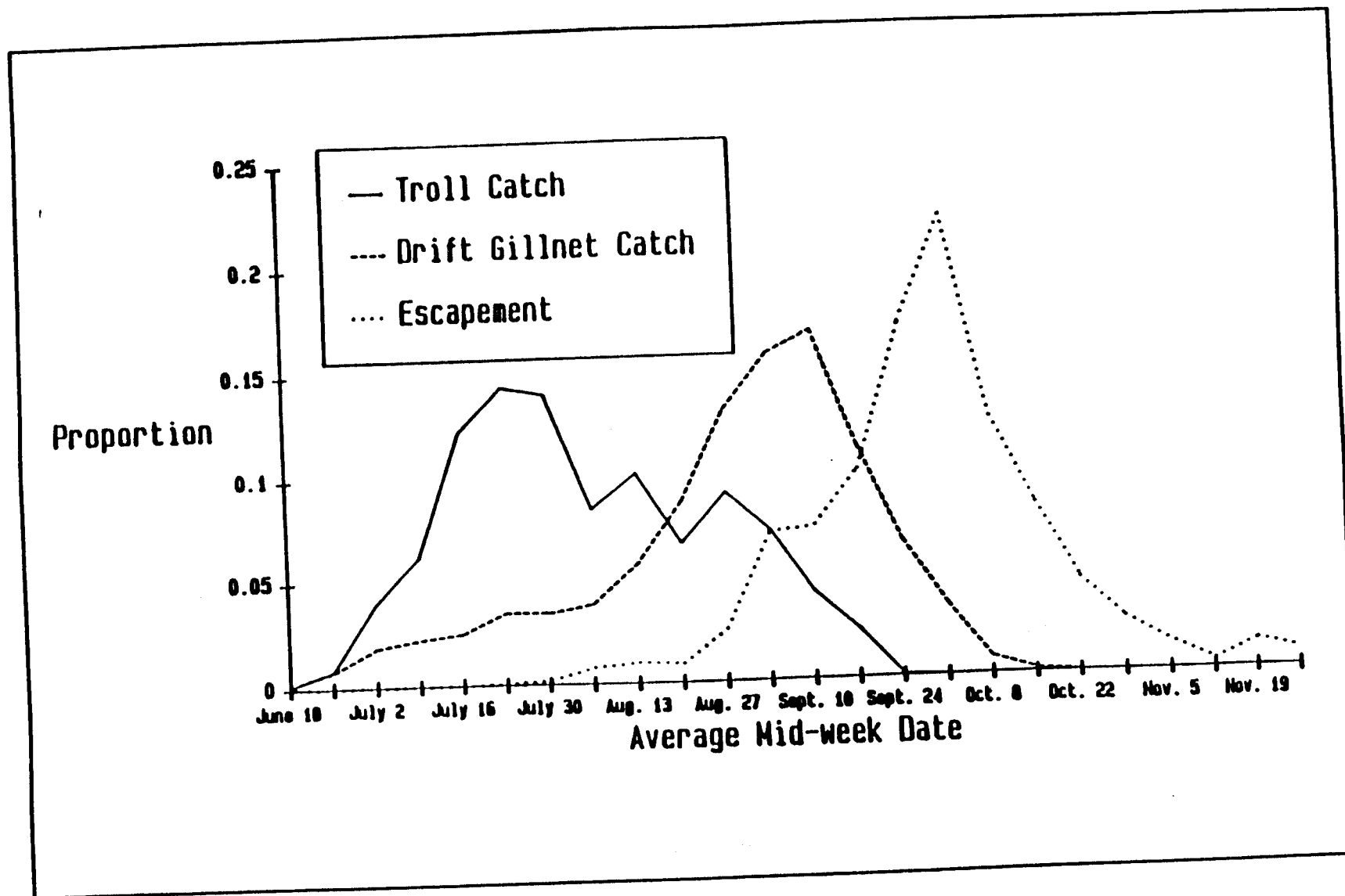


Figure 3. Average timing distribution of coho salmon in the Southeast Alaska troll and drift gill net fisheries and at selected weir sites, 1982 to 1985.

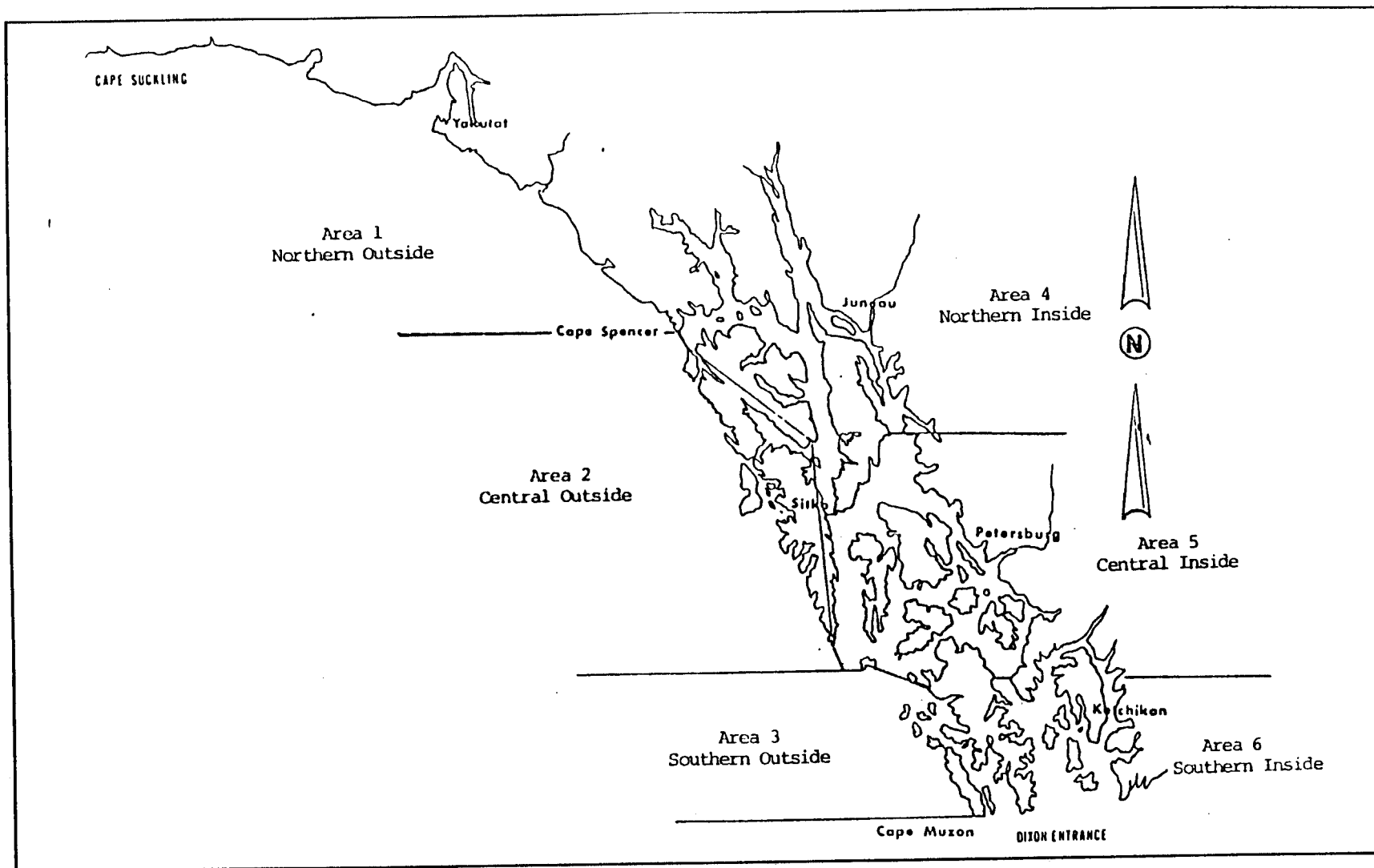


Figure 4. Southeast Alaska troll fishery performance sampling areas.

**ALASKA DEPARTMENT OF FISH AND GAME
COMMERCIAL TROLL FISHERY
FISHERY PERFORMANCE DATA FORM**

Interview Number: 002500

Port: _____

Date of Interview: ____/____/____

Interviewer: _____

ADF&G Number: _____

Name of Vessel: _____

Power Troll: _____ Hand Troll: _____

	Name of Placed Fished	Stat. Area	Days Fished	Hours Per Day		Catch	
					King	Coho	Pink
1.	_____	_____	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____	_____	_____
	Total: _____				Totals: _____		

Trip Dates: ____/____/____ through ____/____/____

Freezing Fish this Trip: ____Yes ____No

Fishermen Comments:

Figure 5. Commercial troll fishery performance data form.

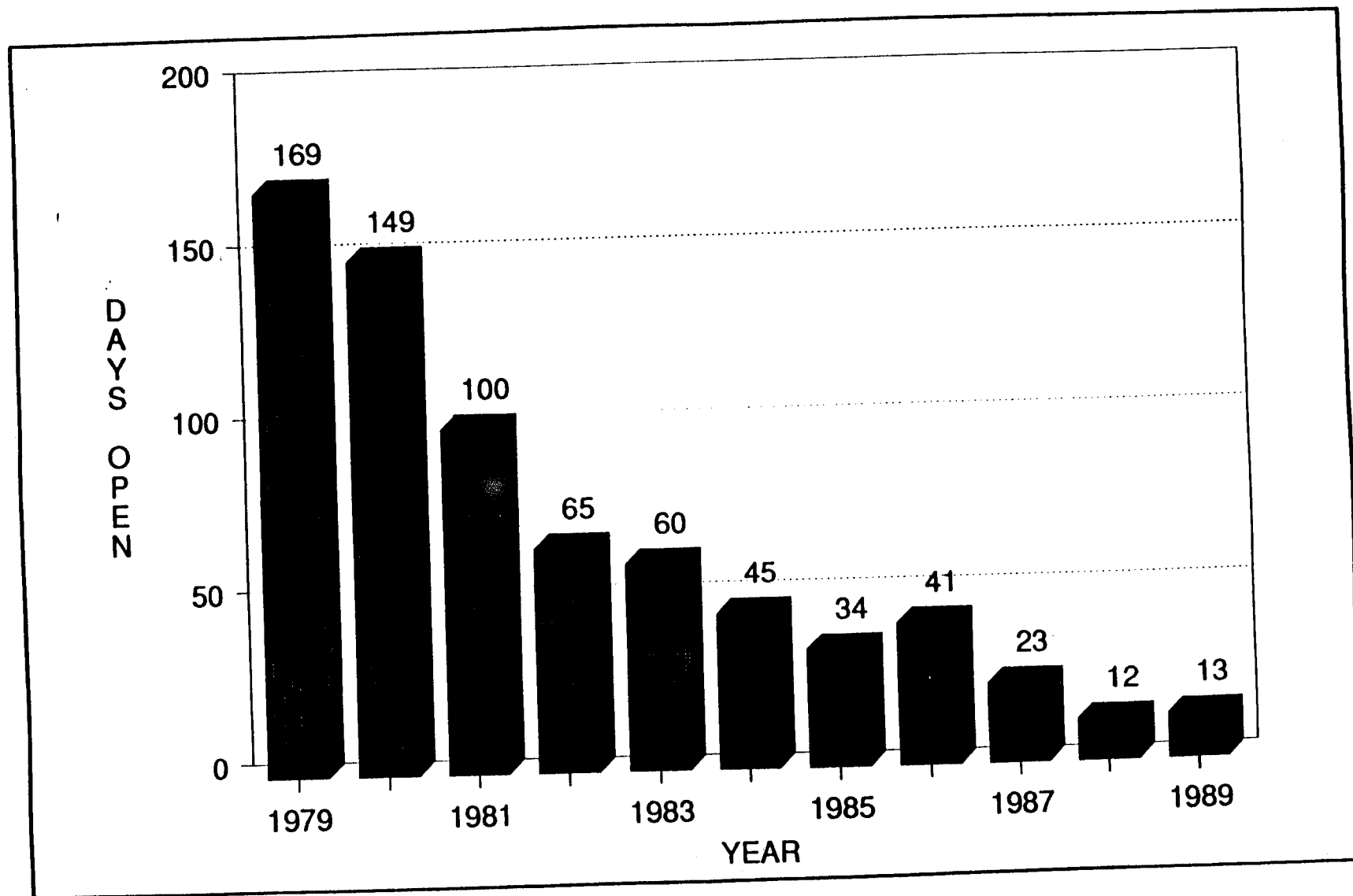


Figure 6. Number of days the general summer troll fishery has been open for chinook salmon, 1979 to present.

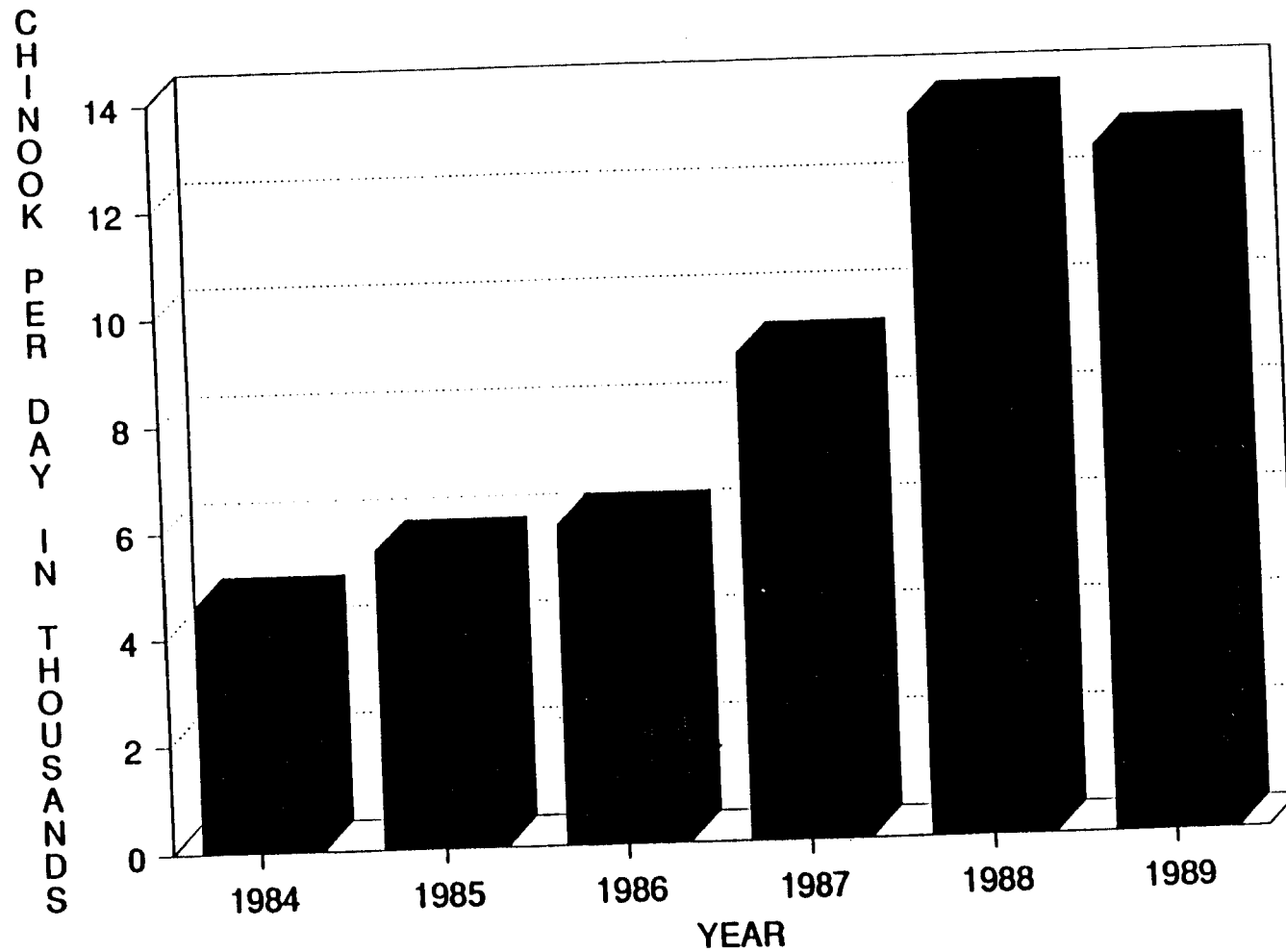


Figure 7. The number of chinook salmon caught per fleet day, 1984 to present.

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